

Speed and Velocity

Follow the path of the car shown below.

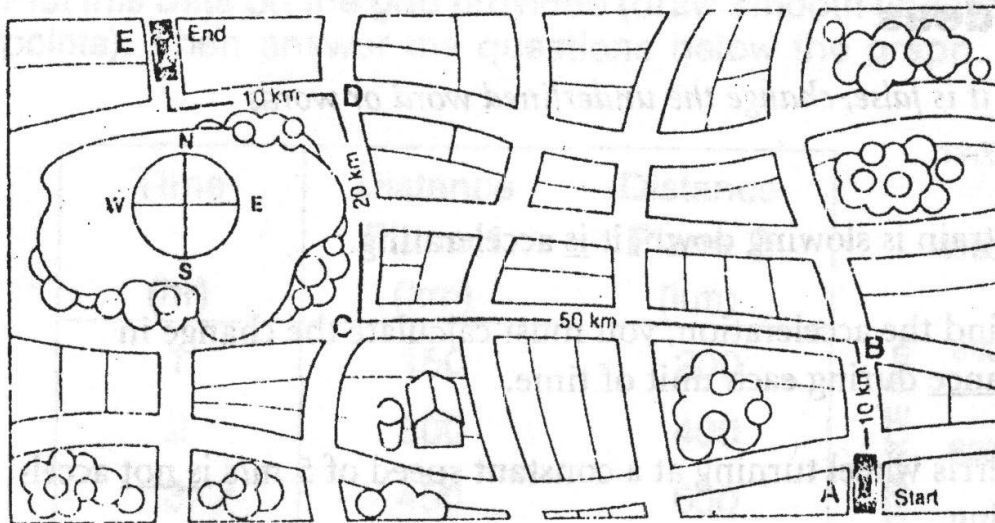


Figure 1.

1. What is the difference between speed and velocity?

2. What is acceleration?

3. The car travels from B to C in 2.5 hours. What is the average *velocity* of the car during that part of the trip? Show work.

4. The entire trip took 6 hours. What is the average *velocity* for the trip? Show work.

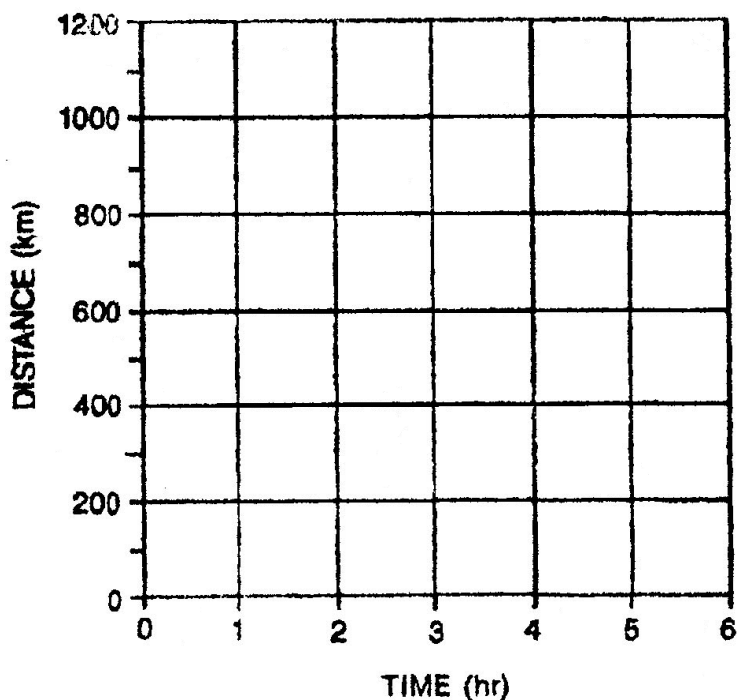
5. The car started from a standstill and reached a speed of 100 m/s during the first 20 seconds of the trip. What is the average acceleration of the car over those 20 seconds? Show work.

6. During the last 10 seconds of the trip, the car slows down from a speed of 150 m/s to a stop. What is the deceleration of the car for those 10 seconds? Show work.

Graphing speed

The table lists data about two airplanes at different speeds. Plot this data on the graph provided (draw a smooth line through the points). Then answer the questions below the graph.

Time (hr)	Distance Plane 1 (km)	Distance Plane 2 (km)
1	150	200
2	300	400
3	450	600
4	600	800
5	750	1000
6	900	1200



7. This type of graph is called a

8. Describe your graph as linear or nonlinear. What is the difference between each?

9. The steepness of each line is called

10. Which airplane was traveling faster? Explain how the lines on the graph tell you.

11. Calculate the average speed in km/hr of each airplane over 6 hours from the last entries in the data table. Use the formula $\text{speed} = \text{distance}/\text{time}$. Show work and circle your answer for each.

Plane 1:

Plane 2: